STAFF REPORT

AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE TULARE LAKE BASIN (5D)

The *Water Quality Control Plan for the Tulare Lake Basin (5D)* (Basin Plan), did not designate beneficial uses of ground waters in the basin. Instead, the Basin Plan stated that beneficial uses of ground water would be determined as waste discharge requirements are issued.

In Resolution No. 89-098 the Regional Board made a determination on the beneficial uses of ground water. Resolution No. 89-098 designated all previously nondesignated surface and ground waters as municipal and domestic supply (MUN) and established criteria for an exception from the MUN designation.

The proposed action is to determine that the waters in the existing and proposed injection zones within, and extended to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field (Figure 1), as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981.

The existing and proposed injection zones are utilized by Texaco Refining and Marketing, Inc's. (TRMI) existing and proposed deep wastewater injection wells, Environmental Protection Corporation's (EPC) existing deep injection wells, and San Joaquin Refining Company's (SJRC) proposed deep injection well, meet the exception criteria established in Resolution No. 89-098. TRMI has requested a revision of its WDRs; SJRC has submitted a Report of Waste Discharge, and EPC needs to have its WDRs updated to conform with current regulations and Board policies. The project sites are in Sections 23, 27 and 28, T29S, R27E, MDB&M, within the boundary of Fruitvale Oil Field, in the western portion of Bakersfield, California.

TRMI has submitted the following information to demonstrate that the proposed injection zones are not a potential underground source of drinking water:

- "Information Needs for Waste Water Injection, Texaco Refining and Marketing, Inc., Existing and Proposed Waste Water Injection Wells, Fruitvale Oil Field, Kern County, California", dated June 1989.

- "Additional Information Needs for Waste Water Injection, Texaco Refining and Marketing, Inc., Existing and Proposed Waste Water Injection Wells, Fruitvale Oil Field, Kern County, California", dated February 1990.

SJRC has submitted the following information to demonstrate that the proposed injection zone is not a potential underground source of drinking water:

- "San Joaquin Refining Company, Inc., Proposed Waste Water Injection Well, Fruitvale Oil Field, Kern County, California", submitted 28 March 1989.

- "Additional Information Needs for Waste Water Injection, San Joaquin Refining Company Proposed Waste Water Injection Well, Fruitvale Oil Field, Kern County, California", dated 10 May 1990.

In order to obtain Order No. 83-146, prescribing waste discharge requirements for their injection well project, EPC submitted information (described in Finding Nos. 7 and 8 of Order No. 83-146) to demonstrate that the injection zone is not a potential underground source of drinking water.

Information has been submitted which documents the current pressure conditions of the injection zone and the projected effects of disposal through 20 years of injection and for 20 years following cessation of injection. Current formation pressure in the basal Etchegoin formation is 1,050 psi. Following 20 years of wastewater disposal, the formation pressure will be 1,078 psi at the well bore and 1,060 psi at a radial distance of 2,000 feet from, the well bore, representing hydraulic head increases of 64 feet and 23 feet, respectively. Twenty years after cessation of injection, the formation pressures are expected to decrease to 1,051 psi, both adjacent to, and a radial distance of 2,000 feet from the well bore, resulting in a net hydraulic head increase of 2.3 feet in the basal Etchegoin. Current formation pressure in the Chanac formation is 1,054 psi. The anticipated formation pressure following 20 years of injection will be 1,082 psi at the well bore and 1,064 psi at a radial distance of 2,000 feet from the well bore, representing hydraulic head increases of 64 feet and 23 feet, respectively. Twenty years after cessation of injection, the formation pressure is expected to decrease to 1,055 psi both adjacent to, and a radial distance of 2,000 feet from, the well bore, resulting in a net hydraulic head increase of 2.3 feet in the Chanac formation. Current formation pressure in the Santa Margarita formation is 1,685 psi. The anticipated formation pressure following 20 years of injection will be 1,762 psi at the well bore and 1,712 psi at a radial distance of 2,000 feet from the well bore. Twenty years after cessation of injection, the formation pressure is expected to decrease to 1,687 psi both adjacent to, and a radial distance of 2,000 feet from, the well bore, resulting in a net hydraulic head increase of 4.6 feet in the Santa Margarita formation.

The aforementioned changes in hydraulic head will be insufficient to cause migration of injected wastewater into overlying useable ground waters even in the absence of confinement. The existing and proposed injection zones are overlain by adequate thicknesses of low permeability clay layers which should confine the wastewaters to the intended injection zone and preclude contamination of the usable ground waters. All of the existing and proposed injection wells are constructed so as to preclude the migration of wastewaters around the well bores into overlying ground water zones. No adverse affects upon the shallow aquifers are anticipated as a result of wastewater injection.

The useable ground waters in the aquifers above the injection zone have not been affected by injection of refinery wastewater. The uppermost ground water bearing zone in the Fruitvale Oil Field has been affected by past refinery operations unrelated to wastewater injection and by the discontinued oil field practice of utilizing sumps to dispose of produced water.

The usable water bearing zones between the surface and the top of the basal Etchegoin are not included in this basin plan amendment, and will retain a MUN designation.

Resolution No. 89-098

In adopting Resolution 89-098 on 26 May 1989, the Regional Board designated all previously nondesignated surface and ground waters as MUN unless they meet criteria for an exception from the MUN designation.

An exception to the MUN designation must meet one of the following criteria:

"1. Surface and ground waters where:

a. The total dissolved solids (TDS) exceed 3,000 mg/l (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by the Regional Board to supply a public water system, or

b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

c. The water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day."; or

"3. Ground waters:

a. Where the aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 Code of Federal Regulations (CFR), Section 146.4, for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, Section 261.3."

PROPOSED RESOLUTION

The Dischargers propose to dispose of refinery wastewater into the Pliocene and Miocene age basal Etchegoin, Chanac, and Santa Margarita formations (existing and proposed injection zones) through ten injection wells. The injection zone will be between 3,300 and 6,000 feet beneath the surface. The Dischargers have submitted information demonstrating that the ground waters that exist in the existing and proposed injection zones meet the exception criteria to the MUN designation contained in Resolution No. 89-098.

The TDS concentration of the waters in the proposed injection zone is greater than 3,000 mg/l and the waters are not reasonably expected to supply a public water

system. Water quality analyses show TDS values in the proposed injection zone vary from 3,100 to 5,700 mg/l.

Portions of the proposed injection zone produce hydrocarbons in commercial quantities in the Fruitvale Oil Field. The basal Etchegoin, Chanac, and Santa Margarita formations within, and extending a distance of one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, have been exempted from the Underground Source of Drinking Water classification pursuant to Federal regulations for the purpose of Class II injection of oil field produced waste-waters. Class II injection within the Fruitvale Oil Field is regulated by the California Division of Oil and Gas, and has been a continuing practice since June 1958.

Chemical analyses of waters from the proposed injection zone contain, in addition to high levels of oil and grease, concentrations of TDS and chloride which exceed the Secondary Drinking Water Standards of Title 22, California Code of Regulations, by six to ten times. In addition, benzene, ethylbenzene, and xylene exceed State Action Levels. The contaminants in the basal Etchegoin, Chanac, and Santa Margarita formations are naturally occurring, as well as partially from past injection well disposal of oil field produced waters and refinery wastewaters, and cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices.

The proposed injection zone is capable of producing an average sustained yield of 200 gallons per day. However, waters within the proposed injection zone are not suitable for drinking water or for irrigation without treatment due to the naturally occurring contaminants identified above. The amortized cost of retrieving and treating waters from the injection zone is estimated to be approximately $1,300 per acre-foot. Currently, low salinity water from an on-site shallow water well in the alluvium at the TRMI refinery is available for $30 per acre-foot. The proposed injection zone is not currently serving as a source of drinking water, or as an agricultural, municipal, or industrial supply.

CEQA REQUIREMENTS FOR BASIN PLAN AMENDMENTS

The process of amending basin plans has been determined to be functionally equivalent to the process required under CEQA. Therefore, it is exempt from the requirement to prepare an environmental impact report. The basin planning process includes an environmental review, consisting of a written report describing the proposed project and the potential adverse environmental impacts with alternatives and mitigation measures. An Environmental Checklist was completed and is included as Attachment A.

Interested persons were notified of the project by a Notice of Public Hearing. The notice was sent to interested persons and published in the local newspaper at least 45 days prior to the Board meeting. A Notice of Filing was also published in the local newspaper by the same date and sent to persons requesting additional information. The Notice of Public Hearing and the Notice of Filing are included as Attachments B and C, respectively. Should the proposed resolution be adopted

by the Regional Board and State Board, a Notice of Decision will be filed with the Secretary of Resources.

RECOMMENDATION

Adopt the proposed resolution affirming ground water within the basal Etchegoin, Chanac, and Santa Margarita formations within, and extending one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981, between the approximate depths of 3,300 feet and 6,000 feet beneath the surface, are not a municipal and domestic supply.

DSJ:cjs

ATTACHMENT A

ENVIRONMENTAL CHECKLIST FORM
(To be Completed By Lead Agency)

I. Background:

1. Name of Proponent California Regional Water Quality Control Board, Central Valley Region

2. Address and Phone Number of Proponent 3614 East Ashlan Avenue
Fresno, CA 93726
(209) 445-5116

3. Date of Checklist Submitted _____

4. Agency Requiring Checklist Resources Agency

5. Name of Proposal, if applicable Amendment to the Water Quality Plan for the Tulare Lake Basin (5d)

II. Environmental Impacts:

See attached pages.

(Explanations of all answers with an effect are required on attached sheets.)

III. Discussion of Environmental Evaluation:
(See staff report narrative.)

IV. Determination:

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment.

2/27/91
Date

William Pfister
Signature

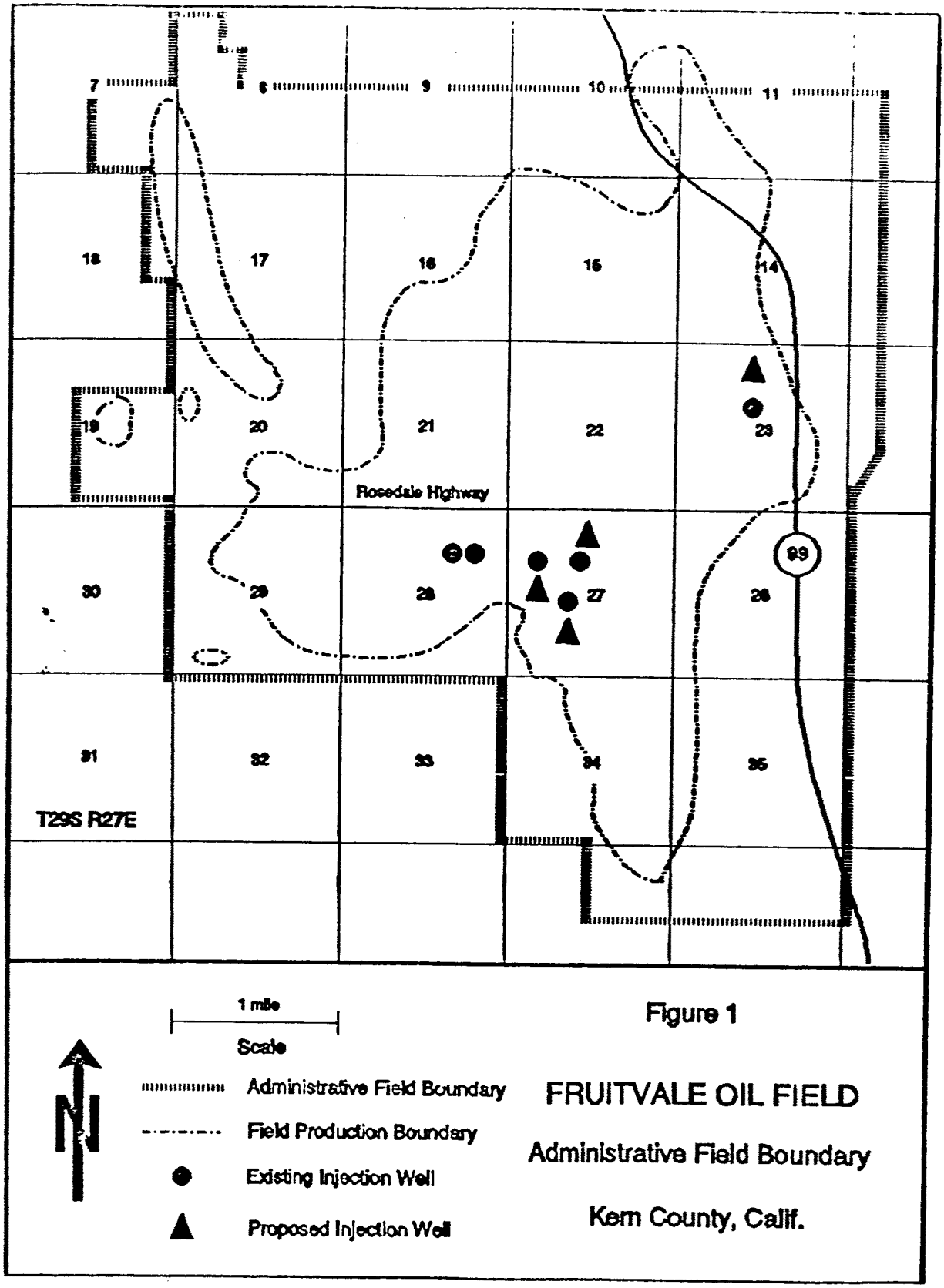
For _____

DEGREE OF EFFECT*						EXISTING CHARACTERISTICS & CONDITIONS	REMARKS
N/A	1	2	3	4	U		
						A. Physical Conditions	1.a.1) The quality of the wastewater is not significantly different from the quality of the formation water. Concentration of wastewater constituents, including total dissolved solids, chloride, and benzene, is lower than the natural concentration of the same constituents in the formation waters for each formation within the injection zone. Overall effect of injection will be no significant change to the quality of the formation waters. The depth of this water (approximately 3,300 - 6,000 feet) and its poor quality indicate it does not now, or will not in the future, have any beneficia uses. No mitigation required. 1.a.2) Injection of wastewater will increase the quantity of formation waters within the disposal interval. No mitigation required.
						1. Water Resources	
		X				a. Groundwater Hydrology	
		X				1) Quality	
		X				2) Quantity	
	X					3) Recharge	
	X					b. Surface Hydrology	
						1) Quality	
						2) Quantity	
						3) Drainage Patterns	
						4) Runoff	
						5) Flooding	
						6) Catchment/Retention	
						7) Temperature of Water	
						8) Evapotranspiration (ET)	
	X					2. Geology/Seismicity	
						a. Faulting	
						b. Landslides	
						c. Subsidence	
						d. Liquefaction	
	X					3. Natural Resources	
						a. Minerals	
						b. Petroleum	
						c. Construction Material	
						d. Soils	
						1) Capability	
						2) Compaction	
						3) Alteration	
						4) Erosion	
	X					4. Climate	
						a. Precipitation	
						b. Air Movement	
						c. Temperature	
						d. Humidity	
						e. Severe Weather	
	X					5. Air Quality	
						a. Mobile Sources	
						b. Stationary Sources	

*Explanation: Degree of Effect
(N/A) Not Applicable
(1) No Effect
(2) Slight Effect
(3) Moderate effect; mitigation measure should be employed
(4) Significant effect; mitigation measure required (Section 15063)
(U) Unknown; additional information necessary to provide competent assessment

DEGREE OF EFFECT*						EXISTING CHARACTERISTICS & CONDITIONS	REMARKS
N/A	1	2	3	4	U		
	X					6. Vegetation	
						a. Trees	
						b. Shrubs	
						c. Grass	
						d. Microflora	
						e. Endangered Species	
						f. Barriers	
						g. Corridors	
						h. Fire	
						i. Crops	
	X					7. Wildlife	
						a. Birds	
						b. Mammals	
						c. Reptiles	
						d. Fish	
						e. Insects	
						f. Microfauna	
						g. Endangered Species	
						h. Barriers	
						i. Corridors	
	X					8. Noise & Vibrations	
						a. Mobile Sources	
						b. Stationary Sources	
						c. Barriers	
	X					9. Human Interest	
						a. Wilderness Areas	
						b. Open-space Qualities	
						c. Visual Value	
						d. Unique Physical Features	
	X					B. Social Conditions	
	X					1. Parks & Recreation	
						a. Park Capacities	
						b. Hunting/Fishing	
						c. Swimming/Boating	
						d. Camping/Hiking	
						e. Day Use	
						f. Equestrian Use	
						g. Off-road Vehicles/Motorcycles	
	X					2. Human Habitation	
						a. Land Use Relationships, Density	
						1) Residential	
						2) Commercial	
						3) Industrial	
						4) Agriculture	
						5) Grazing	
						6) Open Space	
						7) Natural Areas	

DEGREE OF EFFECT*						EXISTING CHARACTERISTICS & CONDITIONS	REMARKS
N/A	1	2	3	4	U		
						b. Demographics	
						1) Population	
						2) Work Force	
						c. Structures	
						1) Design	
						2) Illumination	
	X					3. Transportation/Circulation	
						a. Vehicle Quantities	
						b. Vehicle Capacities/Congestion	
						c. Parking	
						d. Mass Transit	
						e. Hazards	
	X					4. Economic Development	
						a. Revenue Sources	
						b. Government Expense	
						c. Market Area	
	X					5. Social Development	
						a. Law Enforcement	
						b. Fire Protection	
						c. Educational Facilities	
						d. Medical Facilities	
						e. Child Day-care	
	X					6. Service Systems	
						a. Water Supply - Domestic	
						b. Sewage Disposal	
						c. Solid Waste Disposal	
						d. Resource Recovery Systems	
						e. Water Supply - Agriculture	
						f. Storm Drainage	
	X					7. Energy	
						a. Electrical	
						b. Natural Gas	
						c. Petroleum Fuels	
						d. Transmission Facilities	
						e. Forms of Generation	
	X					8. Human Health/Risk of Upset	
						a. Health	
						b. Risk of Upset	
	X					9. Archaeology/History	
						a. Paleontological Resources	
						b. Archaeological Resources	
						c. Historical Resources	
	X					C. Other	


7
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21
22
23
Rosedale Highway
99
30
29
28
27
26
31
32
33
34
35
T29S R27E
1 mile
Scale
Administrative Field Boundary
Field Production Boundary
Existing Injection Well
Proposed Injection Well
Figure 1
FRUITVALE OIL FIELD
Administrative Field Boundary
Kern County, Calif.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. 91-101

AMENDMENT TO THE
WATER QUALITY CONTROL PLAN
FOR THE
TULARE LAKE BASIN (5D)

WHEREAS, Section 13240 of the California Water Code provides that regional water quality control boards shall formulate and adopt water quality control plans for all areas within the region; and

WHEREAS, the Regional Water Quality Control Board, Central Valley Region, (Regional Board) adopted the *Water Quality Control Plan for the Tulare Lake Basin* (5D), (Basin Plan), on 25 July 1975; and

WHEREAS, Texaco Refining and Marketing, Inc., submitted the following information to demonstrate that the injection zone (basal Etchegoin, Chanac, and Santa Margarita formations) of their four existing and three proposed injection wells in Sections 23 and 27, T29S, R27E, MDB&M, is hydrocarbon producing and is not a potential underground source of drinking water:

"Information Needs for Waste Water Injection, Texaco Refining and Marketing, Inc., Existing and Proposed Waste Water Injection Wells, Fruitvale Oil Field, Kern County, California", dated June 1989.

"Additional Information Needs for Waste Water Injection, Texaco Refining and Marketing, Inc., Existing and Proposed Waste Water Injection Wells, Fruitvale Oil Field, Kern County, California", dated February 1990; and

WHEREAS, San Joaquin Refining Company, Inc., submitted the following information to demonstrate that the injection zone (Santa Margarita formation) of their proposed injection well in Section 23, T29S, R27E, MDB&M, is hydrocarbon producing and is not a potential underground source of drinking water:

"San Joaquin Refining Company, Inc., Proposed Waste Water Injection Well, Fruitvale Oil Field, Kern County, California", submitted 28 March 1989.

"Additional Information Needs For Waste Water Injection, San Joaquin Refining Company, Proposed Waste Water Injection Well,Fruitvale Oil Field, Kern County, California", dated 10 May 1990; and

WHEREAS, to obtain Order No. 83-146, prescribing waste discharge requirements for four injection wells in Section 28, T29S, R27E, MDB&M, Environmental Protection Corporation submitted information demonstrating that the injection zone (basal Etchegoin and Chanac formations) is hydrocarbon producing and is not a potential underground source of drinking water (Order No. 83-146, Finding Nos. 7 and 8); and

WHEREAS the aforementioned existing and proposed injection well projects are within the administrative boundaries of the Fruitvale Oil Field, and additional refineries within the administrative boundaries of the Fruitvale Oil Field may reasonably be expected to propose injection well projects in the future; and

WHEREAS, the proposed and existing injection zones utilized by Dischargers within the Fruitvale Oil Field are the basal Etchegoin, Chanac, and Santa Margarita formations, which range in depth from 3,300 feet to 6,000 feet beneath the surface; and

WHEREAS, the current formation pressure in the basal Etchegoin formation is 1,050 psi, the anticipated formation pressure following 20 years of injection will be 1,078 psi at the well bore and 1,060 psi at a radial distance of 2,000 feet from the well bore, and the formation pressure 20 years after cessation of injection will be 1,051 psi both adjacent to the well bore and a radial distance of 2,000 feet from the well bore, representing a head increase of 2.3 feet (1 psi=2.3 feet of head); and

WHEREAS, the current formation pressure in the Chanac formation is 1,054 psi, the anticipated formation pressure following 20 years of injection will be 1,082 psi at the well bore and 1,064 psi at a radial distance of 2,000 feet from the well bore, and the formation pressure 20 years after cessation of injection will be 1,055 psi both adjacent to the well bore and a radial distance of 2,000 feet from the well bore, representing a head increase of 2.3 feet; and

WHEREAS, the current formation pressure in the Santa Margarita formation is 1,685 psi, the anticipated formation pressure following 20 years of injection will be 1,762 psi at the well bore and 1,712 psi at a radial distance of 2,000 feet from the well bore, and the formation pressure 20 years after cessation of injection will be 1,687 psi both adjacent to the well bore and a radial distance of 2,000 feet from the well bore and a radial distance of 2,000 feet from the well bore; representing a head increase of 4.6 feet; and

WHEREAS, the aforementioned changes in hydraulic head will be insufficient to cause migration of injected wastewater into overlying useable ground waters even in the absence of confinement. However, the existing and proposed injection zones are overlain by adequate thicknesses of low permeability clay layers which should confine the wastewaters to the intended injection zone and preclude contamination of the useable ground waters; and

WHEREAS, the Regional Board adopted Resolution No. 89-098 on 26 May 1989 designating all previously nondesignated surface and ground waters within the Tulare Lake Basin as municipal and domestic supply (MUN); and

WHEREAS, Resolution No. 89-098 authorizes an exception to the MUN designation for surface and ground waters where:

" 1. <u>Surface and ground waters where</u>:

a. The total dissolved solids (TDS) exceed 3,000 mg/l (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by the Regional Board to supply a public water system, or

b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that

cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

c. The water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day."; and

"3. Ground waters:

a. Where the aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 Code of Federal Regulations (CFR), Section 146.4, for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, Section 261.3"; and

WHEREAS, the marine sediments of the basal Etchegoin, Chanac, and Santa Margarita formations, between 3,300 and 6,000 feet below the ground surface, are characterized as containing ground water in excess of 3,000 mg/l TDS; and

WHEREAS, the water bearing zones of the basal Etchegoin formation, Chanac formation, and Santa Margarita formation contain TDS and chloride concentrations which exceeds the Secondary Drinking Water Standards of Title 22, California Code of Regulations, by six to ten times; and

WHEREAS, chemical analyses of waters from the basal Etchegoin formation, Chanac formation, and Santa Margarita formation indicate that naturally occurring benzene, ethylbenzene and xylene concentrations exceed State Action Levels; and

WHEREAS, chemical analyses of water from the basal Etchegoin formation, Chanac formation, and Santa Margarita formation contain high levels of oil and grease; and

WHEREAS, the ground water contained in the basal Etchegoin, Chanac, and Santa Margarita formations within the Fruitvale Oil Field and one-quarter mile outside the boundary of the Fruitvale Oil Field is not used now as a municipal or domestic supply; and

WHEREAS, due to excessive TDS and chloride content, volatile organic compounds which exceed State Action Levels, high oil and grease content, and costs of treatment, the ground water contained in the basal Etchegoin, Chanac, and Santa Margarita formations within the Fruitvale Oil Field and within one-quarter mile outside the boundary of the Fruitvale Oil Field cannot reasonably be expected to supply a public water system; and

WHEREAS, portions of the basal Etchegoin, Chanac, and Santa Margarita formations produce commercial quantities of hydrocarbons in the Fruitvale Oil Field; and

WHEREAS, this contamination of the basal Etchegoin, Chanac, and Santa Margarita formations by natural processes and past disposal of oil field produced waters and refinery wastewaters cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices; and

WHEREAS, the State of California, Department of Conservation, Division of Oil and Gas, (CDOG) regulates Class II injection wells in the Fruitvale Oil Field which are used to dispose of fluids associated with the production of hydrocarbon energy (oil); the fluids do not constitute a hazardous waste; and

WHEREAS, the CDOG have, pursuant to 40 CFR, Section 146.4, administratively exempted as underground sources of drinking water aquifers of the basal Etchegoin, Chanac, and Santa Margarita formations within, and extending to one-quarter mile outside, the administrative boundary of the Fruitvale Oil Field; and

WHEREAS, portions of the upper ground water zone are used for domestic and agricultural supply and will retain the MUN designation above a depth of 3,000 feet; and

WHEREAS, the construction of the existing and proposed injection wells is such that the existing upper ground water zones will be fully protected; and

WHEREAS, the basal Etchegoin formation, Chanac formation, and Santa Margarita formation waters within the Fruitvale Oil Field and within one-quarter mile outside the boundary of the Fruitvale Oil Field qualify for an exception from designation as MUN based on the criteria in Resolution No. 89-098; and

WHEREAS, in accordance with requirements of the federal Clean Water Act and the California Water Code, the Regional Board, after due notice to all interested persons, held a public hearing on 26 April 1991 to receive public comment on proposed amendments to the Basin Plan; and

WHEREAS, the basin planning process has been determined to be functionally equivalent to an environmental impact report in accordance with the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) and appropriate notices and waiting periods have been met: Therefore, be it

RESOLVED, that ground water contained in the basal Etchegoin formation, Chanac formation, and Santa Margarita formation within, and extending to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981, is not suitable, or potentially suitable, for municipal or domestic supply (MUN); and be it further

RESOLVED, that portions of the upper ground water zone are used for domestic and agricultural supply and will retain the MUN designation above a depth of 3,000 feet; and be it further

RESOLVED, that the Executive Officer is directed to forward copies of this amendment to the Basin Plan and the record supporting its adoption to the State Water Resources Control Board for approval pursuant to Section 13245 of the California Water Code; and be it further

RESOLVED, that the Executive Officer is directed to file a Notice of Decision with the Secretary for Resources within 30 days after approval by the State Water Resources Control Board.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 April 1991.

WILLIAM H. CROOKS, Executive Officer

DSJ:cjs

NOTICE OF FILING

TO: Any Interested Person

FROM: William F. Pfister
Supervising Engr. Geologist

SUBJECT: Notice of Filing Submitted Under Section 21080.5 of the Public Resources Code

Project Proponents:	California Regional Water Quality Control Board, Central Valley Region (Regional Board)
Project Title:	Amendment to the Water Quality Control Plan for the Tulare Lake Basin (5D)
Contact Person:	Cliff Raley, (209) 445-5093
Project Location:	Fruitvale Oil Field, Bakersfield, California
Project Description:	A determination that ground waters within the Pliocene and Miocene age basal Etchegoin, Chanac, and Santa Margarita formations are not a source of municipal and domestic supply (MUN) within, and extending one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981.

The Regional Board proposes to adopt an amendment to the *Water Quality Control Plan for the Tulare Lake Basin (5D)* (hereafter Basin Plan). Action on this amendment will be taken in accordance with a regulatory program exempt under Section 21080.5 of the Public Resources Code from the requirement to prepare an environmental impact report under the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), and with other applicable laws and regulations.

Copies of the proposed amendment, the Environmental Checklist Form, and accompanying materials can be obtained by contacting Cliff Raley at 3614 E. Ashlan Avenue, Fresno, California, 93726. Mr. Raley may be reached at (209) 445-5093. Regional Board files on this matter may be reviewed weekdays between 8:00 a.m. and 4:00 p.m.

This item will be considered at the regular meeting of the Regional Board on 26 April 1991 at 9:00 a.m. at a location to be announced. Persons wishing to comment on the proposed amendments are requested to submit comments in writing to the Regional Board office no later than **19 April 1991**. All comments will be considered in formulating staff's final recommendation to the Board.

William Pfister

WILLIAM F. PFISTER
Supervising Engineering Geologist

2/27/91
(Date)

DSJ:cjs:2/27/91

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
3614 E. Ashlan Avenue
Fresno, California 93726

NOTICE OF PUBLIC HEARING

in the matter of
AMENDMENT TO THE WATER QUALITY CONTROL PLAN
FOR THE TULARE LAKE BASIN (5D)

The California Regional Water Quality Control Board, Central Valley Region, (Regional Board) proposes to amend the *Water Quality Control Plan for the Tulare Lake Basin (5D)* (Basin Plan), proposes to determine that specific ground water on the northwest side of Bakersfield is not suitable for municipal and domestic supply (MUN). This notice advises interested persons of the opportunity to comment on the proposed action.

Regional Board Resolution No. 89-098 designates all previously nondesignated waters as MUN and establishes criteria for exception of waters. Texaco Refining and Marketing, Incorporated, proposes to inject refinery wastewater into seven injection wells at a depth of approximately 3,300 feet to 6,000 feet. San Joaquin Refining Company proposes to inject refinery wastewater into one injection well at an approximate depth of 4,100 feet. Environmental Protection Corporation currently injects produced water and refinery wastewater into two injection wells between depths of 3,500 feet and 3,900 feet. The Pliocene and Miocene age injection zones are, and will be, the basal Etchegoin, Chanac, and Santa Margarita formations. Anticipated maximum wastewater migration over the 20-year project life is 1,750 feet radially outward from the well bores. Information on this specific matter has been submitted to demonstrate that the ground waters within the proposed injection zone may be excepted from the MUN designation within, and extending one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981.

The Regional Board proposes to determine that the subject ground water is not MUN in accordance with criteria in Resolution 89-098. The following hearing has been scheduled to receive testimony and comments regarding whether available technical data justifies exception of these waters, and if so, to consider adoption of a Basin Plan amendment. The hearing will be held at 9:00 a.m. on 26 April 1991 at a location to be announced at a later date.

Persons wishing to comment on the proposed amendment are requested to submit comments in writing to the Regional Board office no later than **19 April 1991.** Oral testimony before the Board should be brief and summarize salient points of comments submitted in writing. All comments will be considered in formulating staff's final recommendation to the Board.

Copies of the proposed amendment, Environmental Checklist Form, and accompanying materials may be obtained by contacting Cliff Raley with the Regional Board at 3614 E. Ashlan Avenue, Fresno, California, 93726. Mr. Raley may be reached at (209) 445-5093. Regional Board files on this matter may be reviewed weekdays between 8:00 a.m. and 4:00 p.m.

William Pfister

WILLIAM F. PFISTER
Supervising Engineering Geologist

2/27/91
Date

DSJ:cjs:2/27/91

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

INITIAL STUDY
FOR
TEXACO REFINING AND MARKETING INCORPORATED
WASTEWATER INJECTION WELLS
FRUITVALE OIL FIELD
KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Board), has received a Report of Waste Discharge dated 7 July 1989, from Texaco Refining and Marketing Incorporated (hereafter TRMI), for the disposal of nonhazardous wastewater by subsurface injection in the Fruitvale Oil Field, Kern County. The Board, as lead agency for this project, prepared an environmental checklist in accordance with the "Regulations for Implementation of the Environmental Quality Act of 1970", Title 23, California Code of Regulations, Division 3, Chapter 15. An initial study has been conducted in accordance with "Guidelines for Implementation of the CEQA", Title 14, California Code of Regulations, Section 15063.

Project Description

TRMI currently operates 4 subsurface wastewater injection wells, and proposes to construct and operate three additional injection wells in the Fruitvale Oil Field. The injection wells will be at TRMI's Bakersfield refinery (hereafter Plant) in Sections 23 and 27, T29S, R27E, MDB&M (Figure 1). The existing injection wells have been designated Red Ribbon WD #1, Red Ribbon #7, Red Ribbon #8, and W.I. #1. Wastewater generated by the Plant is currently disposed of through the four on-site injection wells. Order No. 81-065 prescribes waste discharge requirements for injection well W.I. #1. Order No. 86-238 prescribes waste discharge requirements for injection well Red Ribbon WD #1. There are no prior or existing waste discharge requirements for injection wells Red Ribbon #7 and Red Ribbon #8.

The existing and proposed injection wells will dispose of wastewaters generated from certain units at the Plant. The combined waste stream consists of: boiler blowdown, cooling tower blowdown, boiler plant brine, crude desalter water, oil wastewater from various units, stripped sour water, tank drainings, storm water, produced water from on-site wells, and treated water from the Plant's ground water remediation program. Prior to injection, waste streams are chemically treated and filtered to separate oil, remove suspended solids, and reduce volatile organic compounds. A maximum total discharge of 1.05 mgd (725 gpm) will be distributed to the injection wells on a 24-hour per day basis.

The waste streams generated at the Plant have been determined to be nonhazardous by the Department of Health Services (DHS).

According to Federal Underground Injection Control program (UIC) criteria contained in Title 40, Code of Regulations (40 CFR), Section 144.6, the existing and proposed injection wells can be classified as Class V.

Injection will be at depths between approximately 3,500 feet and 5,174 feet. The wells are, and will be, constructed with 40 feet of conductor casing, 464 to 750 feet of surface casing, and long-string casing from surface to active total depth of the injection well. The annular space between the casing and boring wall is, or will be, cemented from the bottom of the well to the surface. Injection will take place through perforations shot through the casing in the injection interval. An injection tube with a packer, set above the injection perforations, is utilized. The annular space between the tubing and the long-string casing is filled with a corrosion inhibiting fluid and the volume monitored.

ENVIRONMENTAL SETTING

The injection wells are approximately 2 miles west of the City of Bakersfield. Land use in the area is predominantly oil field production, refining, and certain industrial activities.

The proposed site lies outside the 100-year flood boundary area according to the Federal Insurance Administration's "Flood Hazard Boundary Map".

The major producing zone for fresh ground water in the area is the upper portion of the uppermost Kern River formation. Water quality analyses indicates that good quality water is available for drinking and agricultural purposes. Some degradation has reportedly occurred due to past oil field wastewater disposal to surface impoundments. Ground water with an electrical conductivity of less that 3,000 umhos exists from depths of about 30 feet to approximately 3,200 feet.

Geologically, the Fruitvale Oil Field is a homoclinal structure that dips gently to the west. This structure is near the eastern edge of the San Joaquin Basin. Formations within the Fruitvale Oil Field consist of nonmarine and marine sediments ranging in age from Eocene to Recent. These sediments were deposited upon an upper Jurassic basement.

Injection occurs and will be into the marine sediments of the basal Etchegoin, Chanac, and Santa Margarita formations, which are the hydrocarbon producing formations in the Fruitvale Oil Field. The injection intervals are between depths of approximately 3,500 feet and 5,174 feet. The Santa Margarita formation is capped by the Chanac formation, which is the main hydrocarbon producing zone in the Fruitvale Oil Field. The Chanac formation consists of sands and interbedded siltstones and claystones greater than 1,000 feet thick. These interbedded siltstones and claystones should preclude the upward migration of wastewater injected into the Santa Margarita formation and portions of the Chanac formation. The Etchegoin formation, unconformably overlying the Chanac formation, consists of approximately 600 feet of laterally discontinuous fine- to coarse-grained sandstones with interbedded siltstones and claystones. The basal Etchegoin sands are oil producing in the

eastern half of the oil field. The interbedded siltstones and claystones, combined with an upper confining zone which consists of approximately 10 feet of laterally continuous claystone, should preclude the upward migration of wastewater injected into the lower Etchegoin and Chanac formations. The Fruitvale Shale, which is approximately 1,500 feet thick, underlies the Santa Margarita formation. This should prevent the downward migration of wastewater. Brine waters associated with petroleum production are currently injected into the basal Etchegoin, Chanac, and Santa Margarita formations. No producing or injection wells completed in the Santa Margarita formation are known to exist within a 1/4-mile radius of influence of the existing or proposed Santa Margarita formation injection wells.

Information has been submitted which documents the current pressure conditions of the injection zone and the projected effects of disposal through 20 years of injection and for 20 years following cessation of injection. Current formation pressure in the basal Etchegoin formation is 1,050 psi. Following 20 years of wastewater disposal, the formation pressure will be 1,078 psi at the well bore and 1,060 psi at a radial distance of 2,000 feet from the well bore, representing hydraulic head increases of 64 feet and 23 feet, respectively. Twenty years after cessation of injection, the formation pressures are expected to decrease to 1,051 psi, both adjacent to, and a radial distance of 2,000 feet from, the well bore, resulting in a net hydraulic head increase of 2.3 feet in the basal Etchegoin. Current formation pressure in the Chanac formation is 1,054 psi. The anticipated formation pressure following 20 years of injection will be 1,082 psi at the well bore and 1,064 psi at a radial distance of 2,000 feet from the well bore, representing hydraulic head increases of 64 feet and 23 feet, respectively. Twenty years after cessation of injection, the formation pressure is expected to decrease to 1,055 psi both adjacent to, and a radial distance of 2,000 feet from, the well bore, resulting in a net hydraulic head increase of 2.3 feet in the Chanac formation. Current formation pressure in the Santa Margarita formation is 1,685 psi. The anticipated formation pressure following 20 years of injection will be 1,762 psi at the well bore and 1,712 psi at a radial distance of 2,000 feet from the well bore, representing hydraulic head increases of 177 feet and 62 feet respectively. Twenty years after cessation of injection, the formation pressure is expected to decrease to 1,687 psi both adjacent to, and a radial distance of 2,000 feet from, the well bore, resulting in a net hydraulic head increase of 4.6 feet in the Santa Margarita formation.

The aforementioned changes in hydraulic head will be insufficient to cause migration of injected wastewater into overlying useable ground waters in the absence of confinement. The existing and proposed injection zones are overlain by adequate thicknesses of low permeability clay layers which should confine the wastewaters to the intended injection zone and preclude contamination of the usable ground waters. All of the existing and proposed injection wells are constructed so as to preclude the migration of wastewaters

around the well bores into overlying ground water zones. No adverse affects upon the shallow aquifers are anticipated as a result of wastewater injection.

No known faults that are likely to act as vertical conduits or lateral barriers to fluid migration have been identified on or adjacent to the proposed site within a one-quarter mile radius of the injection wells.

The water quality of the injection zones and the anticipated wastewaters, as submitted by TRMI, are compared in Table I with the Department of Health Service's, State of California Drinking Water maximum contaminant levels (Title 22, California Code or Regulations, Sections 64435 and 64473). The TRMI wastewater figures represent an average numerical value obtained from samples taken between 30 June 1981 and 3 April 1990. The TDS content through this period varied from 730 mg/l to 2,769 mg/l.

Formation water concentrations of the following constituents exceed the concentrations in the waste stream: arsenic, barium, boron, calcium, chloride, copper, lead, magnesium, potassium, sodium, zinc, benzene, and phenol. Based upon the above information, the quality of the waste stream is not significantly different from the quality of the formation water. Drinking Water Standards have been established by DHS for TDS (1,000 mg/l) and Chloride (500 mg/l). The University of California Committee of Consultants has found that severe irrigation problems can be expected when certain limits for chloride (335 mg/l), boron (2.0 mg/l), and sodium (as measured by adjusted sodium adsorption ratio of 9.0) are exceeded. Comparisons with these limits and the above data indicates that water in the Etchegoin, Chanac, and Santa Margarita formations are not expected to provide a current or future beneficial use for drinking or agricultural water supplies without treatment.

The above analyses indicate that based on average concentrations, the wastewaters are dominated by Chloride, Sodium, and Sulfate. The waste stream exceeds the Drinking Water Standards for Sulfate, Chloride, EC, TDS, and Selenium. The waste stream was also analyzed for organic constituents, which exceeded the Title 22 standards for Benzene, and Toluene.

The State Water Resources Control Board (State Board), on 19 May 1988, adopted Resolution No. 88-63 which defines waters which are considered sources of drinking water. Resolution No. 88-63 states:

> "All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards with the exception of:

Table I - Wastewater and formation water constituent levels.

Constituent mg/l; unless noted	TRMI Wastewater	Etchegoin Fm.	Chanac Fm.	Santa Margarita Fm.	Title 22 Standard
Inorganic Constituents					
TDS	1909	3515	4815	5783	500.0
Conductivity (umhos/cm)	2651	1930		8900	900
pH	8.5	7.0	7.1	7.7	
Arsenic	0.008	-	-	0.175	0.05
Barium	0.128	0.3	0.7	0.55	1.0
Boron	1.2	3.3	3.0	7.0	
Cadmium	<0.005	-	-	<0.01	0.01
Calcium	68.0	282	129	160	
Chloride	479	1597	679	2625	250
Chromium (tot.)	0.02	-	-	0.44	
Copper	<0.01	-	-	2.3	1.00
Fluoride	0.56	-	-	<0.1	4.0
Iron	-	0.97	1.2	42	0.35
Lead	<0.005	-	-	1.32	0.05
Magnesium	4.7	118	54	49	
Manganese	-	-	-	1.5	0.05
Mercury (ug/l)	0.97	-	-	0.002	0.002
Potassium	8.6	47	76.5	24	
Selenium	0.482	-	-	<0.35	0.01
Sodium	450	740	660	1800	
Sulfate	530	12	7.0	15.0	250
Sulfite	-	-	-	191	
Vanadium	<0.05	-	-	<0.35	
Zinc	0.686	-	-	3.06	5.0
Organic Constituents					
Benzene (ug/l)	490	-	-	6,431	1.0
Ethylbenzene (ug/l)		-	-	5,993	680.0
Phenol	0.87	-	-	5.9	
Toluene (ug/l)	7,300	-	-	5,947	100.0
Xylene (ug/l)		-	-	5,280	1,750.0
2,4-Dimethylphenol (ug/l)	235	-	-	411	

1. Surface and ground waters where:

   a. The total dissolved solids (TDS) exceed 3,000 mg/l (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by Regional Boards to supply a public water system, or

b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

c. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day."

and

"3. Ground waters:

a. Where the aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 Code of Federal Regulations (CFR), Section 146.4, for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, Section 261.3;"

The information supplied by TRMI addresses the application of the criteria contained in Resolution No. 88-63 discussed above. The concentration of total dissolved solids within the injection zones is greater than 3,000 mg/l. The water within the injection zones is not currently, nor is it reasonably expected, to serve as a source of drinking water, or agricultural or industrial supply. Within the Fruitvale Oil Field, commercial extraction of hydrocarbons from the basal Etchegoin, Chanac, and Santa Margarita formations has been occurring since 1928. Property adjacent to the Plant currently produces oil from the injection zones.

The basal Etchegoin, Chanac, and Santa Margarita formations within the administrative boundary of the Fruitvale Oil Field, and a distance of one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, have been exempted from the Underground Source of Drinking Water classification pursuant to Federal regulations for the purpose of Class II injection of oil field produced wastewaters. Class II injection within the Fruitvale Oil Field is regulated by the California Division of Oil and Gas, and has been a continuing practice since June 1958.

Due to the stratigraphic location, poor water quality, and the availability of higher quality water on the surface and in the shallow sands of the Kern River formation, the proposed injection zones are not considered a future USDW. Water within the basal Etchegoin, Chanac, and Santa Margarita formations is not suitable for drinking water or for irrigation without treatment. The amortized cost of extracting and treating the injection zone water is reported

to be approximately $1,300 per acre-foot. Currently, low salinity water from an on-site well at the Plant is available for $30 per acre-foot. The concentration of TDS and chlorides found within waters of the basal Etchegoin, Chanac, and Santa Margarita formations exceed the Secondary Drinking Water Standards of Title 22, California Code of Regulations. Based upon the information submitted, the formation water of the proposed injection zones is hydrocarbon producing and does not have a demonstrated current or future beneficial use.

In summary, according to State Board Resolution No. 88-63, the ground water in the injection zones is not suitable or potentially suitable, for municipal or domestic water supply because (1) the TDS exceeds 3,000 mg/l and it is not reasonably expected to supply a public water system, (2) it cannot reasonably be treated for domestic use because of current levels of contamination and, the cost of obtaining the water from a depth greater than 3,500 feet, and (3) the injection zone has been exempted from the federal USDW classification for the purposes of Class II injection of oilfield produced wastewaters by the California Division of Oil and Gas. Also, these conditions substantiate the determination that the water has no current or potential beneficial uses.

Design of the existing and proposed injection wells is similar to existing injection wells currently operated by other nonhazardous dischargers in the area. These wells have been injecting concentrated waste solutions for over ten years. To prevent upward and lateral migration of wastewater, the annular space outside the long string casing will be cemented from total depth to the surface, the surface casing will be cemented from the total depth of the surface casing (minimum depth 600) to the surface, and a minimum of 40 feet of conductor casing will be used for the wells. An adequate number of centralizers will maintain the casing in the center of the well bore.

ENVIRONMENTAL MITIGATION MEASURES

Attached is a completed "Environmental Checklist Form" for the project. The findings of this initial study conclude that this project will not have an adverse impact on the environment. Mitigation measures consist of chemical and physical water treatment prior to injection, and waste discharge requirements that will regulate well construction, operation, and a monitoring and reporting program.

COMPATIBILITY WITH POLICY

The Board is charged, under the *Porter-Cologne Water Quality Control Act* and the *Water Quality Control Plan for the Tulare Lake Basin (5D)*, with the protection of "Beneficial Uses" of waters of the State from "degradation".

The Board's staff has developed tentative waste discharge requirements to regulate the proposed project.

The Division of Oil and Gas will be issuing drilling permits for the proposed injection wells as they will be located within the administrative boundary of an existing oil field. They will also oversee the proper construction and testing of all the injection wells.

AGENCY CONTACT

Board staff is in the process of contacting responsible agencies to obtain their comments prior to completion of this assessment.

Based upon a review of the project by Regional Board staff, it has been concluded that the project will not degrade any useable water body beyond any current or foreseeable beneficial use, and thus, will not have a significant effect on the quality of the State's water. The Board's staff proposes to recommend to the Board that a Negative Declaration on the project be submitted to the Secretary for Resources.

If there are any comments regarding this assessment, please direct them to the following address:

California Regional Water Quality Control Board
Central Valley Region
3614 East Ashlan Avenue
Fresno, California 93726
Attention: Dane Johnson
(209) 445-5525

PROPOSED
NEGATIVE DECLARATION

TO WHOM IT MAY CONCERN:

Pursuant to the California Environmental Quality Act of 1970 (CEQA), the staff of the California Regional Water Quality Control Board, Central Valley Region, has made an Initial Study of possible environmental impacts of the following described project.

APPLICANT:	Texaco Refining and Marketing Incorporated
APPLICATION:	Adoption of waste discharge requirements to regulate seven deep injection wells for disposal of refinery wastewater.
COMMON NAME OR TITLE OF PROJECT:	Refinery Wastewater Injection Wells
LOCATION:	Fruitvale Oil Field, Kern County Sections 23 and 27, T27S, R29E, MDB&M
DESCRIPTION OF PROPOSED PROJECT:	Disposal of nonhazardous wastewater from refinery production into seven injection wells with the disposal zone between approximately 3,500 and 5,174 feet in depth.
MITIGATION MEASURES PROPOSED TO AVOID POTENTIALLY SIGNIFICANT EFFECTS:	(1) Oil-water separation, chemical treatment, and filtration of wastewater stream prior to injection. (2) Well construction designed to convey and confine wastewater to the injection zone without degrading shallower, good quality ground water. (3) Monitoring of effluent and the mechanical integrity of the injection wells.

FINDINGS:

It has been found that this project, as described, will not have a significant effect on the environment. Therefore, an EIR is not required by CEQA. A brief statement of reasons supporting such findings is as follows:

The project should not:

a. Conflict with adopted environmental plans and goals of the community where it is located;

b. Have a substantial, demonstrable negative aesthetic effect;

c. Substantially affect a rare or endangered species of animal or plant, or the habitat of the species;

d. Interfere substantially with the movement of any resident or migratory fish or wildlife species;

e. Breach published national, state, or local standards relating to solid waste or litter control;

f. Substantially degrade water quality;

g. Contaminate a public water supply;

h. Substantially degrade or deplete ground water resources;

i. Interfere substantially with ground water recharge;

j. Disrupt or adversely affect a prehistoric archaeological site, paleontological site, or a property of historic or cultural significance to a community or ethnic or social group;

k. Induce substantial growth or concentration of population;

l. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system;

m. Displace a large number of people;

n. Encourage activities which result in the use of large amounts of fuel, water, or energy;

o. Use fuel, water, or energy in a wasteful manner;

p. Increase substantially the ambient noise levels for adjoining areas;

q. Cause substantial flooding, erosion, or siltation;

r. Expose people or structures to major geologic hazards;

s. Extend a sewer trunk line with capacity to serve new developments;

t. Substantially diminish habitat for fish, wildlife, or plants;

u. Disrupt or divide the physical arrangement of an established community;

v. Create a potential public health hazard or involve the use, production, or disposal of materials which pose a hazard to people or animal or plant populations in the area affected;

w. Conflict with established recreational, educational, religious, or scientific uses of the area;

x. Violate an ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations;

y. Convert prime agricultural land to nonagricultural use or permanently impair the agricultural productivity of prime agricultural land; and

z. Interfere with emergency response plans or emergency evacuation plans.

Any persons may object to dispensing with such EIR or respond to the findings herein. If there is no response within 30 days, this department will assume that there are no comments and a Negative Declaration will be prepared. Information relating to the proposed project is on file in the office of the department identified below, at the address shown below. Any persons wishing to examine or obtain a copy of that information or this document, or seeking information as to the time and manner to so object or respond, may do so by inquiring at said office during regular business hours.

A copy of the Initial Study is attached hereto.

Dated this 25 day of February, 1991.

Calif. Regional Water Quality Control Board — Central Valley Region

3614 E. Ashlan Ave., Fresno, CA 93726 — By: William Plister
(Address of Department Office) (Authorized Signature)

(209) 445-5116 — Supervising Engineering Geologist
(Telephone Number of Department) (Position/Title)

(Date Posted) (Date of Notice to Public)

DSJ:

ATTACHMENT A

ENVIRONMENTAL CHECKLIST FORM
(To be Completed By Lead Agency)

I. Background:

1. Name of Proponent Texaco Refining and Marketing Incorporated

2. Address and Phone Number of Proponent P.O. Box 1476
Bakersfield, CA 93302
(805) 326-4232

3. Date of Checklist Submitted 22 February 1991

4. Agency Requiring Checklist CA Regional Water Quality Control Board

5. Name of Proposal, if applicable Wastewater Injection Wells

II. Environmental Impacts:

See attached pages.

(Explanations of all answers with an effect are required on attached sheets.)

III. Discussion of Environmental Evaluation:
(See initial study narrative.)

IV. Determination:

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

2/22/91
Date

William Pfister
Signature

For _____

DEGREE OF EFFECT*						EXISTING CHARACTERISTICS & CONDITIONS	REMARKS
N/A	1	2	3	4	U		
						A. Physical Conditions	1.a.1) The quality of the wastewater is not significantly different from the quality of the formation water. Concentration of wastewater constituents, including total dissolved solids, chloride, and benzene, is lower than the natural concentration of the same constituents in the formation waters for each formation within the injection zone. Overall effect of injection will be no significant change to the quality of the formation waters. The depth of this water (approximately 3,300 - 6,000 feet) and its poor quality indicate it does not now, or will not in the future, have any beneficial uses. No mitigation required. 1.a.2) Injection of wastewater will increase the quantity of formation waters within the disposal interval. No mitigation required.
						1. Water Resources	
		X				a. Groundwater Hydrology	
		X				1) Quality	
		X				2) Quantity	
	X					3) Recharge	
	X					b. Surface Hydrology	
						1) Quality	
						2) Quantity	
						3) Drainage Patterns	
						4) Runoff	
						5) Flooding	
						6) Catchment/Retention	
						7) Temperature of Water	
						8) Evapotranspiration (ET)	
	X					2. Geology/Seismicity	
						a. Faulting	
						b. Landslides	
						c. Subsidence	
						d. Liquefaction	
	X					3. Natural Resources	
						a. Minerals	
						b. Petroleum	
						c. Construction Material	
						d. Soils	
						1) Capability	
						2) Compaction	
						3) Alteration	
						4) Erosion	
	X					4. Climate	
						a. Precipitation	
						b. Air Movement	
						c. Temperature	
						d. Humidity	
						e. Severe Weather	
	X					5. Air Quality	
						a. Mobile Sources	
						b. Stationary Sources	

*Explanation: Degree of Effect
(N/A) Not Applicable
(1) No Effect
(2) Slight Effect
(3) Moderate effect; mitigation measure should be employed
(4) Significant effect; mitigation measure required (Section 15063)
(U) Unknown; additional information necessary to provide competent assessment

DEGREE OF EFFECT*						EXISTING CHARACTERISTICS & CONDITIONS	REMARKS
N/A	1	2	3	4	U		
	X					6. Vegetation	
						a. Trees	
						b. Shrubs	
						c. Grass	
						d. Microflora	
						e. Endangered Species	
						f. Barriers	
						g. Corridors	
						h. Fire	
						i. Crops	
	X					7. Wildlife	
						a. Birds	
						b. Mammals	
						c. Reptiles	
						d. Fish	
						e. Insects	
						f. Microfauna	
						g. Endangered Species	
						h. Barriers	
						i. Corridors	
	X					8. Noise & Vibrations	
						a. Mobile Sources	
						b. Stationary Sources	
						c. Barriers	
	X					9. Human Interest	
						a. Wilderness Areas	
						b. Open-space Qualities	
						c. Visual Value	
						d. Unique Physical Features	
	X					B. Social Conditions	
	X					1. Parks & Recreation	
						a. Park Capacities	
						b. Hunting/Fishing	
						c. Swimming/Boating	
						d. Camping/Hiking	
						e. Day Use	
						f. Equestrian Use	
						g. Off-road Vehicles/Motorcycles	
	X					2. Human Habitation	
						a. Land Use Relationships, Density	
						1) Residential	
						2) Commercial	
						3) Industrial	
						4) Agriculture	
						5) Grazing	
						6) Open Space	
						7) Natural Areas	

DEGREE OF EFFECT*						EXISTING CHARACTERISTICS & CONDITIONS	REMARKS
N/A	1	2	3	4	U		
						b. Demographics	
						1) Population	
						2) Work Force	
						c. Structures	
						1) Design	
						2) Illumination	
	X					3. Transportation/Circulation	
						a. Vehicle Quantities	
						b. Vehicle Capacities/Congestion	
						c. Parking	
						d. Mass Transit	
						e. Hazards	
	X					4. Economic Development	
						a. Revenue Sources	
						b. Government Expense	
						c. Market Area	
	X					5. Social Development	
						a. Law Enforcement	
						b. Fire Protection	
						c. Educational Facilities	
						d. Medical Facilities	
						e. Child Day-care	
	X					6. Service Systems	
						a. Water Supply - Domestic	
						b. Sewage Disposal	
						c. Solid Waste Disposal	
						d. Resource Recovery Systems	
						e. Water Supply - Agriculture	
						f. Storm Drainage	
	X					7. Energy	
						a. Electrical	
						b. Natural Gas	
						c. Petroleum Fuels	
						d. Transmission Facilities	
						e. Forms of Generation	
	X					8. Human Health/Risk of Upset	
						a. Health	
						b. Risk of Upset	
	X					9. Archaeology/History	
						a. Paleontological Resources	
						b. Archaeological Resources	
						c. Historical Resources	
	X					C. Other	

Mail to: State Clearinghouse, 1400 Tenth Street, Room 121, Sacramento, CA 95814 — (916/445-0613)

See NOTE below

SCH #

NOTICE OF COMPLETION AND ENVIRONMENTAL DOCUMENT TRANSMITTAL FORM

1. Project Title: Texaco Refining & Marketing Inc., Wastewater Disposal Wells
2. Lead Agency: Ca Reg. Water Quality Control Bd 3. Contact Person: Dane Johnson
3a. Street Address: 3614 E. Ashlan Avenue 3b. City: Fresno
3c. County: Fresno 3d. Zip: 93726 3e. Phone: 445-5525

PROJECT LOCATION 4. County: Kern 4a. City/Community: Bakersfield
4b. Assessor's Parcel No. 332-260-08 332-04-101 4c. Section 23 & 27 Twp. 29S Range 27E
5a. Cross Streets: 5b. For Rural, Nearest Community: Bakersfield

6. Within 2 miles: a. State Hwy # 58 b. Airports c. Railways X d. Waterways

7. DOCUMENT TYPE
CEQA
01. ___NOP 06. ___JOE
02. ___Early Cons 07. ___JOC
03. X Neg Dec 08. ___JOD
04. ___Draft EIR
05. ___Supplement/Subsequent EIR (Prior SCH No.: _____)
NEPA
09. ___NOI 11. ___Draft EIS
10. ___JONSI 12. ___FA
OTHER
13. ___Joint Document
14. ___Final Document
15. ___Other

8. LOCAL ACTION TYPE
01. ___General Plan Update
02. ___New Element
03. ___General Plan Amendment
04. ___Master Plan
05. ___Annexation
06. ___Specific Plan
07. ___Community Plan
08. ___Redevelopment
09. ___Rezone
10. ___Land Division (Subdivision, Parcel Map, Tract Map, etc.)
11. ___Use Permit
12. ___Waste Mgmt Plan
13. ___Cancel Ag Preserve
14. X Other WDRs

9. DEVELOPMENT TYPE
01. ___Residential: Units ___ Acres ___
02. ___Office: Sq. Ft. ___ Acres ___ Employees ___
03. ___Shopping/Commercial: Sq. Ft. ___ Acres ___ Employees ___
04. ___Industrial: Sq. Ft. ___ Acres ___ Employees ___
05. ___Water Facilities: MGD ___
06. ___Transportation: Type ___
07. ___Mining: Mineral ___
08. ___Power: Type ___ Watts ___
09. ___Waste Treatment: Type ___
10. ___OCS Related
11. X Other: Injection Well

10. TOTAL ACRES: 2.5 11. TOTAL JOBS CREATED: ___

12. PROJECT ISSUES DISCUSSED IN DOCUMENT
01. ___Aesthetic/Visual
02. ___Agricultural Land
03. ___Air Quality
04. ___Archaeological/Historical
05. ___Coastal Zone
06. ___Economic
07. ___Fire Hazard
08. X Flooding/Drainage
09. X Geologic/Seismic
10. ___Jobs/Housing Balance
11. ___Minerals
12. ___Noise
13. ___Public Services
14. ___Schools
15. ___Septic Systems
16. ___Sewer Capacity
17. ___Social
18. ___Soil Erosion
19. ___Solid Waste
20. X Toxic/Hazardous
21. ___Traffic/Circulation
22. ___Vegetation
23. X Water Quality
24. X Water Supply
25. ___Wetland/Riparian
26. ___Wildlife
27. ___Growth Inducing
28. ___Incompatible Land Use
29. ___Cumulative Effects
30. ___Other

13. FUNDING (approx) Federal $ ___ State $ ___ Total $ ___
14. PRESENT LAND USE AND ZONING:

15. PROJECT DESCRIPTION: Disposal of nonhazardous refinery wastewater through four existing and three proposed injection wells. Wells to be located on property of existing refinery in Fruitvale Oil Field, Kern County.

16. SIGNATURE OF LEAD AGENCY REPRESENTATIVE: William Pfister DATE: 2/22/91

NOTE: Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. from a Notice of Preparation or previous draft document) please fill it in.

FORM REVISED 4/86 - REPLACES OLD

YOUR DISTRIBUTION OF ENTRIES

REVIEWING AGENCIES

____ Resources Agency	____ Caltrans District _____
____ Boating/Waterways	____ Dept. of Transportation Planning
____ Conservation	____ Aeronautics
_X_ Fish and Game	____ California Highway Patrol
____ Forestry	____ Housing & Community Dev't.
____ Colorado River Board	____ Statewide Health Planning
_X_ Dept. Water Resources	_X_ Health Services (Toxics)
____ Reclamation	____ Food & Agriculture
____ Parks and Recreation	____ Public Utilities Commission
____ Office of Historic Preservation	____ Public Works
____ Native American Heritage Commission	____ Corrections
____ S.F. Bay Cons. & Dev't. Commission	____ General Services
____ Coastal Commission	____ OLA
____ Energy Commission	____ Santa Monica Mountains
____ State Lands Commission	____ TRPA
X Air Resources Board	____ OPR - OLGA
____ Solid Waste Management Board	____ OPR - Coastal
____ SWRCB: Sacramento	____ Bureau of Land Management
____ RWQCB: Region # _____	____ Forest Service
____ Water Rights	_X_ Other: DOG - Bakersfield
____ Water Quality	X Other: U.S. EPA

FOR SCH USE ONLY

Date Received at SCH _____ Catalog Number _____
Date Review Starts _____ Applicant _____
Date to Agencies _____ Consultant _____
Date to SCH _____ Contact _____ Phone _____
Clearance Date _____ Address _____
Notes: _____

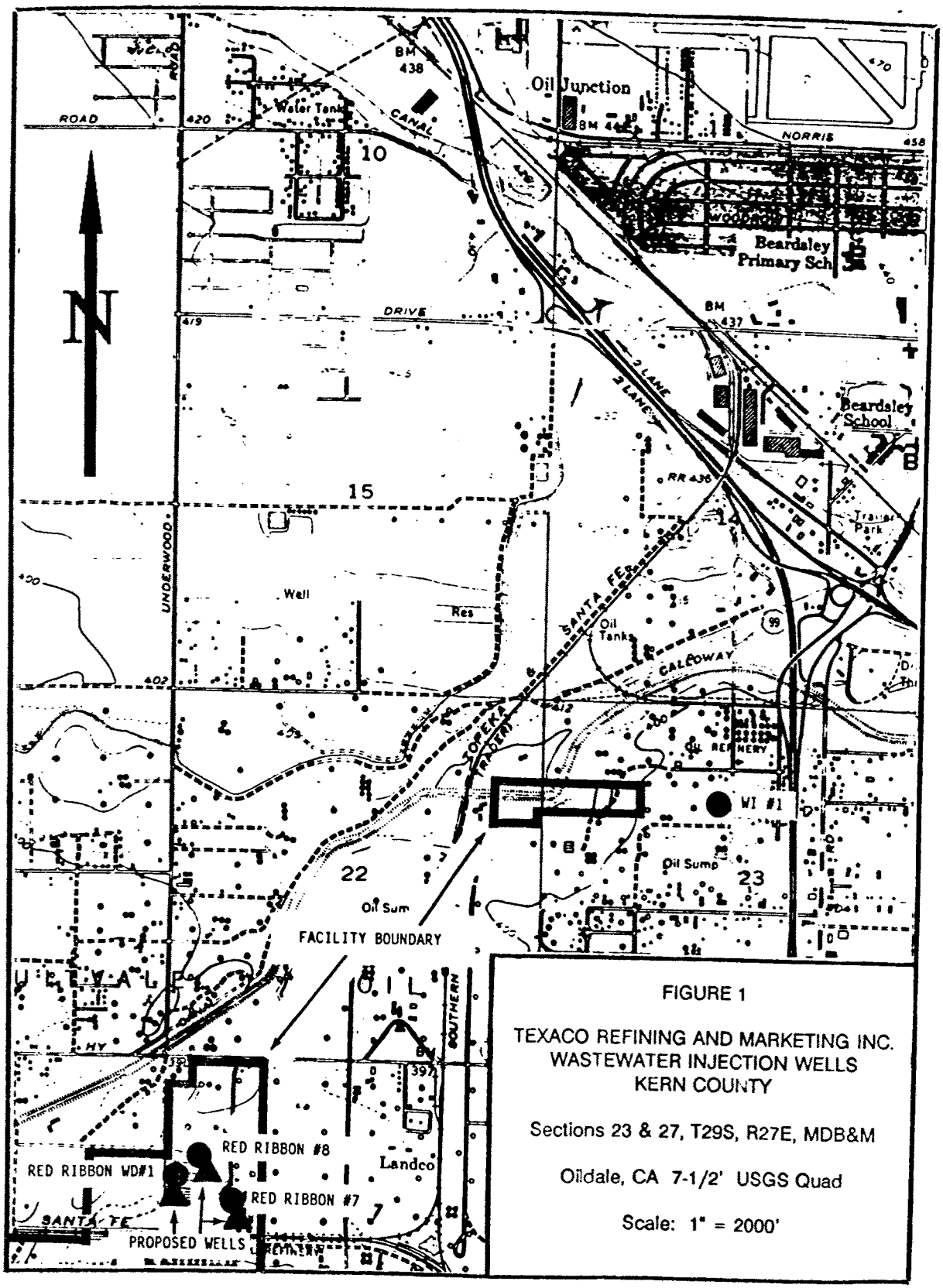

FIGURE 1

TEXACO REFINING AND MARKETING INC.
WASTEWATER INJECTION WELLS
KERN COUNTY

Sections 23 & 27, T29S, R27E, MDB&M

Oildale, CA 7-1/2' USGS Quad

Scale: 1" = 2000'

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. 91-100

APPROVING THE INITIAL STUDY AND
ADOPTING A NEGATIVE DECLARATION FOR
THE ISSUANCE OF WASTE DISCHARGE REQUIREMENTS
FOR
TEXACO REFINING AND MARKETING INCORPORATED
WASTEWATER INJECTION WELLS
KERN COUNTY

WHEREAS, on 7 July 1989, Texaco Refining and Marketing Incorporated (TRMI), submitted a Report of Waste Discharge to the California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) to dispose of nonhazardous refinery wastewater by subsurface injection within the Fruitvale Oil Field, Kern County; and

WHEREAS, the proposed project is on the property of the TRMI refinery in Sections 23 and 27, T29S, R27E, MDB&M; and

WHEREAS, the design, construction, and operation of injection wells are not subject to conditional use permits or environmental documentation by the local agencies, and the Board, in requesting application for waste discharge requirements, is therefore lead agency in this project; and

WHEREAS, the Board has assumed the lead agency role for this project under the California Environmental Quality Act and has conducted an Initial Study in accordance with Title 14, California Code of Regulations, Section 15063, entitled "Guidelines for the Implementation of the California Environmental Quality Act"; and

WHEREAS, the Initial Study concluded that the project as proposed would not have a significant effect on the environment and a Negative Declaration would be prepared, and the Initial Study stated that waste discharge requirements would be formulated for the project to regulate well construction, operation, and monitoring at the site; and

WHEREAS, copies of the Initial Study, proposed Negative Declaration, and tentative waste discharge requirements were transmitted to all agencies and persons known to be interested in this matter, and to the State Clearinghouse; and

WHEREAS, no comments received were during the public comment period; and

WHEREAS, the Board considered all testimony and evidence at a public hearing held on 26 April 1991 in Sacramento, California, and good cause was found to approve the Initial Study and adopt a Negative Declaration: Therefore be it

RESOLVED, that the California Regional Water Quality Control Board, Central Valley Region, approves the Initial Study and adopts a Negative Declaration for issuance of waste discharge requirements for discharge of nonhazardous refinery wastewater through seven injection wells operated by Texaco Refining and Marketing, Incorporated.